Waste Management
ENVIRONMENTAL QUALITY

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

MICHAEL E. SCOTT
Acting Director

March 15, 2016

Mr. C. Chan Bryant, PE
Withers & Ravenel, Inc.
111 MacKenan Drive
Cary, NC 27511

Re: Request for Remedial Investigation Summary – Task Order 198SUM-A and B
Otway Community Refuse Dump
Town of Otway, Carteret County
ID#: NONCD0000198

Dear Mr. Bryant:

Submit a task work plan and cost estimate to produce a report that summarizes risks identified from all remedial investigation results at the above referenced site. Conduct these activities in accordance with State Contract No. N10002S

Scope of Work:

Schedule a meeting with the Unit project manager to discuss the results of the site investigation to confirm all exposure risks have been identified at the site. If the meeting identifies that additional investigation activities are needed, then the remaining task will be held until all investigation results are available to complete the Remedial Investigation Summary Report.

- Submit the proposal in two parts; initial meeting and report.
- Provide itemized cost estimates that identify personnel and materials needed to complete both parts of the task.

Report:

- To the extent practical, the report must be written in a style that the general public can understand.
- Include background (light grey) topographic contour lines on figures.

The report titled "Remedial Investigation Summary" will be an executive summary in the Draft Remedial Action Plan. The report will be a concise summary of the site's history and current conditions, risks identified to human health and the environment posed by the physical characteristics of on-site waste and/or media sampling results compared to applicable standards. The report's reference section is a resource for the reader to locate previous report details. Follow the instructions provided in the attached Remedial Investigation Summary template. The template is intended to provide report organization and general guidance for common investigation findings and not every conceivable outcome. Reporting of unique site conditions will be discussed and planned during the initial meeting.

Below is the Table of Contents from the Remedial Investigation Report template that may have been modified to address relevant site conditions and remedial investigation results. Include the following sections from the template:

1.0 INTRODUCTION

2.0 SENSITIVE ENVIRONMENTS

3.0 GEOLOGY AND HYDROGEOLOGY

4.0 WASTE DISPOSAL AREA

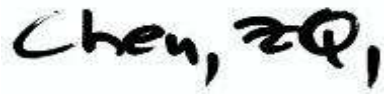
5.0 MEDIA CHARACTERIZATION

- **5.1 Soil and Sediment Characterization**
  - **5.1.1 Soil and Sediment Remedial Goals**
  - **5.1.2 Soil Sampling**
  - **5.1.3 Sediment Sampling**
- **5.2 Water Characterization**
  - **5.2.1 Groundwater Monitor Wells**
  - **5.2.2 Potable Water Supply Wells**
  - **5.2.3 Surface Water and Seeps**
- **5.3 Landfill Gas Characterization**

6.0 REFERENCES

Provide the work plan and cost estimate by March 23, 2016. A task authorization to begin work will be issued based on the approved proposal. Do not proceed with tasks prior to receiving this authorization. If you have any questions or concerns, contact me at (919)707-8347.

Sincerely,



Ziqiang Chen, PhD, Environmental Engineer II
Division of Waste Management, NCDEQ

Attachment: Template of RI SUM Report

REMEDIAL INVESTIGATION SUMMARY REPORT
[SITE NAME]
{SITE CITY], [SITE COUNTY], North Carolina
ID No. [SITE ID]
State Contract No. N1####S
Task Order [TASK ORDER NUMBER]

Prepared By:

Submitted To:

North Carolina Department of Environment and Natural Resources
Division of Waste Management
Inactive Hazardous Sites Branch
Superfund Section
Pre-Regulatory Landfill Unit
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

Prepared By:
[COMPANY NAME, ADDRESS, LOGO]

[DATE]

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ACRONYMS

1.0 INTRODUCTION

- State the purpose of the report: this report provides an executive summary of the remedial investigation.
- Include the name of the site, ID Number, site location, site size (in acres), number of parcels and parcel IDs containing waste and/or affected media (ie, the Site).
- Include general information regarding historic use. Provide available specific waste information and whether it poses a risk or affects an identified receptor.
- Include current site use, site access, cover vegetation, surface water, on-site structures and utilities. Include current zoning and water supply information for the site and site vicinity. If relevant, briefly explain the contribution or potential of contamination from another site/source.
- Include a site vicinity map showing the site location on a USGS topographic map.

2.0 SENSITIVE ENVIRONMENTS

Were sensitive environments identified at the Site? If not, state "No sensitive environments were identified in the site vicinity." If so, identify them here. Any special details associated with the sensitive environments identified that require consideration for the remedy? If so, state.

3.0 GEOLOGY AND HYDROGEOLOGY

Provide local/regional geologic and hydrogeologic conditions. Discuss naturally occurring inorganics in soil and groundwater and other naturally occurring area conditions. Provide reference information (literature, health department, web site, etc.) about naturally occurring conditions in the area that includes range of concentration for each.

4.0 WASTE DISPOSAL AREA

This section serves to identify waste and physical hazards present at the site.

- Is surface waste present at the site? If so, what types (list tires and white goods separately)? What is the estimated volume? Where is it located? Include a figure delineating surface waste. If no surface waste is present, omit this section.
- Is partially buried waste present at the site? If so, what types? What is the estimated volume of this waste? Where is it located? If all waste at the Site is surface or buried waste, omit this section.
- Is buried waste present at the site? If considering waste removal (generally less than 40,000 cubic yards), what is the estimated volume of waste for each affected parcel? Are there any waste types that require special management and disposal (asbestos, contaminated materials requiring removal)? Where is it located? If there is no buried waste, omit this section.
- Include a figure showing the waste disposal area using all past investigation results to depict a final waste limits area. All figures should include grayscale topographic contours, property boundaries, a North arrow and a legend with an explanation of symbols.
- What other physical risks are posed by waste at the site? Are there steep slopes? If steep slopes or other risks are present, identify them on the waste disposal area figure.
- What is the range of soil cover thickness across the waste disposal area? If less than 18" of cover is present use shading to identify deficient areas on a soil cover thickness map.

5.0 MEDIA CHARACTERIZATION

This section serves to summarize the relationship of contaminants in all media investigated. Include an investigation map that identifies all borings, all well locations and surface/sediment sampling locations.

If contaminants (including daughter products) were identified in concentrations that may require additional cleanup then provide the necessary figures (by media type) to identify those area(s) (points of contaminant and/or iso-concentrations).

5.1 Soil and Sediment Characterization

5.1.1 Soil and Sediment Remedial Goals

Include the statement: "Soil and sediment analytical results were initially compared to the Preliminary Soil Remediation Goals (PSRGs) established by the North Carolina Inactive Hazardous Sites Branch (IHSB)."

Select the applicable of the following statements (note this will not address every condition):

- If no SRGs are established at sites with less than 40,000 cubic yards and anticipate removal of waste, then only use background/naturally occurring inorganics in the evaluation.
- If no site specific SRGs are required at sites where there is greater than 40,000 cubic yards of disposed waste state *"*An evaluation of analytical results for soil and sediment was completed that meet remedial goals for a containment remedy.*"*
- If site specific SRGs have been calculated for this site, the following language is required*:*

  "Remediation goals are established in a manner consistent with applicable standards. The following site specific health based SRGs include the following:" List SRGs.

5.1.2 Soil Sampling

- Were background soil samples collected? If so, state the number. Identify naturally occurring analytes that exceed (P)SRGs.
- Are analytes exceeding (P)SRGs attributed to anthropogenic or naturally occurring background conditions? If so, briefly explain. If not, omit this section.
- Provide the number of cover soil samples.
- Were analytes exceeding (P)SRGs detected in cover soil samples? (As needed, explain or do not include naturally occurring analytes and/or values below SRGs.) If so, which analytes? Include a figure and table identifying only those analytes exceeding (P)SRGs.

If no exceedances (adjusted for naturally occurring inorganics or health-based averaged goals) were detected in cover soil samples, omit this section.

- Provide the number of soil/waste samples.
- Were analytes exceeding (P)SRGs detected in subsurface soil/waste samples? If so, which analytes? Include a figure and table identifying only those analytes exceeding (P)SRGs exclude naturally occurring inorganics or (P)SRGs. If no exceedances were detected in subsurface soil samples, omit this section.

5.1.3 Sediment Sampling

- Provide the number of sampling locations.
- Were analytes exceeding (P)SRGs detected in sediment samples? (As needed, explain or do not include naturally occurring analytes and/or values below SRGs.) If so, which analytes? Include a figure and table identifying only those analytes exceeding (P)SRGs excluding naturally occurring inorganics. If no exceedances were detected in sediment samples, omit this section.

5.2 Water Characterization

5.2.1 Groundwater

- Provide the number of groundwater wells.
- What is the depth-to-groundwater at the site? What is the groundwater flow direction? Include a groundwater flow direction map.
- Groundwater analytical results are compared to North Carolina's 15A NCAC 02L.0202 Groundwater Quality Standards.
    - If there were no exceedances add the following statement, "No exceedances were detected in groundwater."
    - If analytes exceed applicable standards in on-site groundwater state "The following analytes exceed the 2L standard; list analytes." Include a groundwater concentration map and table identifying only those analytes exceeding applicable standards.

- If exceedances are due to naturally occurring conditions, explain.

5.2.2 Surface Water and Seeps

Surface water results are compared to applicable North Carolina's 15A NCAC 2B.0200 Surface Waters and Wetlands Standards.

- Provide the number of sampling locations.

If no exceedances were detected in surface water samples and on-site seeps state "No exceedances were detected in surface water samples and on-site seeps."

- Were analytes exceeding applicable standards detected in surface water samples? If so, which analytes? Include a figure and table identifying only analytes exceeding applicable standards. If no exceedances were detected, omit.
- Were analytes exceeding applicable standards detected in seeps? If so, which analytes? Include a figure and table identifying only those analytes exceeding applicable standards. If no exceedances were detected in on-site seeps, omit this section.
- If exceedances are due to naturally occurring conditions, explain.

5.2.3 Potable Water Supply

If no potable wells were sampled, omit this section.

- Otherwise provide the number of potable wells sampled. How frequent? Include a figure of the potable water supply well location(s).
- Use the following language "Groundwater analytical results are compared to the Federal Maximum Contaminant Levels (MCLs), North Carolina's 15A NCAC 02L.0202 Groundwater Quality Standards, and site-specific, health-based concentrations calculated by the IHSB Superfund Section Toxicologist."
- If no exceedances were detected in potable water supply wells, state: "No applicable exceedances were detected in potable water supply wells."
- Were analytes exceeding applicable standards detected in potable water supply wells (exclude naturally occurring inorganics)? If so, list the analytes. Include a figure and table identifying only those analytes exceeding applicable standards.

- If exceedances are not associated with the landfill, explain.

5.3 Landfill Gas Characterization

- What were the relevant results of the above ground vapor study? Only include results that were used to determine placement of subsurface landfill gas probes. If no landfill gas was identified during the above ground vapor study, state "No landfill gas was detected at the ground surface."
- Provide the number of landfill gas probes.
- Were gases (and/or vapors) detected while monitoring subsurface gas probes with field instruments? In which gas probes were they detected?
- Which gases (methane, ammonia, hydrogen sulfide) and/or vapors (water, mercury, volatile organic compounds)?
- Were analytes exceeding applicable standards detected in gas samples (TO 15) collected for laboratory analysis? Which analytes? Where were they detected? Include a table and figure identifying only those analytes exceeding applicable standards. If no exceedances were detected during landfill gas screening state "No vapor intrusion potential is present".
- Are vapor intrusion concerns present at the site? Are exceedances a concern (yes or no) explain reason. Which chemicals are associated with these issues? Include a figure identifying the areas of vapor intrusion concerns. If no vapor intrusion concerns are present at the site, omit.

6.0 REFERENCES

Sole Use Statement

Suggested language: The report was prepared solely for the intended use of NCDENR Inactive Hazardous Sites Branch performed in the scope of work for Task Order_____. Use of this document for other purposes is at the sole risk of the user.

Report Certification